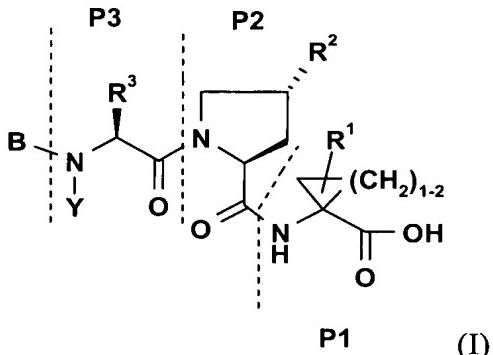


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## **WHAT IS CLAIMED IS:**

- 1.** A racemate, diastereoisomer or optical isomer of a compound of formula (I);



wherein **B** is H, a C<sub>6</sub> or C<sub>10</sub> aryl, C<sub>7-16</sub> aralkyl; Het or (lower alkyl)-Het, all of which optionally substituted with C<sub>1-6</sub> alkyl; C<sub>1-6</sub> alkoxy; C<sub>1-6</sub> alkanoyl; hydroxy; hydroxyalkyl; halo; haloalkyl; nitro; cyano; cyanoalkyl; amino optionally substituted with C<sub>1-6</sub> alkyl; amido; or (lower alkyl)amide; or **B** is an acyl derivative of formula **R**<sub>4</sub>-C(O)-; a carboxyl derivative formula **R**<sub>4</sub>-O-C(O)-; an amide derivative of formula **R**<sub>4</sub>-N(**R**<sub>5</sub>)-C(O)-; a thioamide derivative of formula **R**<sub>4</sub>-N(**R**<sub>5</sub>)-C(S)-; or a sulfonyl derivative of formula **R**<sub>4</sub>-SO<sub>2</sub> wherein

**R<sub>4</sub>** is (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, amido, or (lower alkyl) amide; (ii) C<sub>3-7</sub> cycloalkyl, C<sub>3-7</sub> cycloalkoxy, or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with hydroxy, carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, amido, or (lower alkyl) amide; (iii) amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; amido; or (lower alkyl)amide; (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl) amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;

**R<sub>5</sub>** is H or C<sub>1-6</sub> alkyl;

with the proviso that when **B** is a carboxyl derivative, an amide derivative or a thioamide derivative, **R<sub>4</sub>** is not a cycloalkoxy;

**Y** is H or C<sub>1-6</sub> alkyl;

**R<sup>3</sup>** is C<sub>1-8</sub> alkyl, C<sub>3-7</sub> cycloalkyl, or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> thioalkyl, amido, (lower alkyl)amido, C<sub>6</sub> or C<sub>10</sub> aryl, or C<sub>7-16</sub> aralkyl;

**R<sup>2</sup>** is CH<sub>2</sub>-**R<sub>20</sub>**, NH-**R<sub>20</sub>**, O-**R<sub>20</sub>** or S-**R<sub>20</sub>**, wherein **R<sub>20</sub>** is a saturated or unsaturated C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> (alkylcycloalkyl), all of which being optionally mono-, di- or tri-substituted with **R<sub>21</sub>**,

or **R<sub>20</sub>** is a C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-14</sub> aralkyl, all optionally mono-, di- or tri-substituted with **R<sub>21</sub>**,

or **R<sub>20</sub>** is Het or (lower alkyl)-Het, both optionally mono-, di- or tri-substituted with **R<sub>21</sub>**,

wherein each **R<sub>21</sub>** is independently C<sub>1-6</sub> alkyl; C<sub>1-6</sub> alkoxy; lower thioalkyl; sulfonyl; NO<sub>2</sub>; OH; SH; halo; haloalkyl; amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, C<sub>6</sub> or C<sub>10</sub> aryl, C<sub>7-14</sub> aralkyl, Het or (lower alkyl)-Het; amido optionally mono-substituted with C<sub>1-6</sub> alkyl, C<sub>6</sub> or C<sub>10</sub> aryl, C<sub>7-14</sub> aralkyl, Het or (lower alkyl)-Het; carboxyl; carboxy(lower alkyl); C<sub>6</sub> or C<sub>10</sub> aryl, C<sub>7-14</sub> aralkyl or Het, said aryl, aralkyl or Het being optionally substituted with **R<sub>22</sub>**;

wherein **R<sub>22</sub>** is C<sub>1-6</sub> alkyl; C<sub>3-7</sub> cycloalkyl; C<sub>1-6</sub> alkoxy; amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; sulfonyl; (lower alkyl)sulfonyl; NO<sub>2</sub>; OH; SH; halo; haloalkyl; carboxyl; amide; (lower alkyl)amide; or Het optionally substituted with C<sub>1-6</sub> alkyl;

**R<sup>1</sup>** is H; C<sub>1-6</sub> alkyl, C<sub>3-7</sub> cycloalkyl, C<sub>2-6</sub> alkenyl, or C<sub>2-6</sub> alkynyl, all optionally substituted with halogen;

or a pharmaceutically acceptable salt or ester thereof;

wherein "Het" is defined as a five-, six-, or seven-membered saturated or unsaturated, aromatic or non-aromatic, heterocycle containing from one to four heteroatoms selected from nitrogen, oxygen and sulfur, wherein said heterocycle is optionally fused to a benzene ring.

2. A compound of formula I according to claim 1, wherein **B** is a C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amido, or amino optionally substituted with C<sub>1-6</sub> alkyl; or  
**B** is Het or (lower alkyl)-Het, all optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amido, or amino optionally substituted with C<sub>1-6</sub> alkyl.
3. A compound of formula I according to claim 1, wherein **B** is **R**<sub>4</sub>-SO<sub>2</sub> wherein **R**<sub>4</sub> is C<sub>1-6</sub> alkyl; amido; (lower alkyl)amide; C<sub>6</sub> or C<sub>10</sub> aryl, C<sub>7-14</sub> aralkyl or Het, all optionally substituted with C<sub>1-6</sub> alkyl.
4. A compound of formula I according to claim 1, wherein **B** is an acyl derivative of formula **R**<sub>4</sub>-C(O)- wherein **R**<sub>4</sub> is
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, hydroxy or C<sub>1-6</sub> alkoxy, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
  - (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, both optionally substituted with hydroxy, carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
  - (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl)amide, or amino optionally substituted with C<sub>1-6</sub> alkyl;
  - (v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino optionally substituted with C<sub>1-6</sub> alkyl, amido, (lower alkyl)amide, or amino optionally substituted with C<sub>1-6</sub> alkyl.
5. A compound of formula I according to claim 1, wherein **B** is a carboxyl derivative of formula **R**<sub>4</sub>-O-C(O)-, wherein **R**<sub>4</sub> is
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, amido or (lower alkyl)amide;
  - (ii) C<sub>3-7</sub> cycloalkyl, C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amino optionally mono- or di-substituted

with C<sub>1-6</sub> alkyl, amido or (lower alkyl)amide;

(iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; or

(v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, amido or (lower alkyl)amido.

6. A compound of formula I according to claim 1, wherein **B** is an amide derivative of formula **R<sub>4</sub>-N(R<sub>5</sub>)-C(O)-** wherein **R<sub>4</sub>** is

(i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;

(ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;

(iii) amino optionally mono- or di-substituted with C<sub>1-3</sub> alkyl;

(iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl)amide, or amino optionally substituted with C<sub>1-6</sub> alkyl; or

(v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino optionally substituted with C<sub>1-6</sub> alkyl, amido or (lower alkyl)amide; and

**R<sub>5</sub>** is H or methyl.

7. A compound of formula I according to claim 1, wherein **B** is a thioamide derivative of formula **R<sub>4</sub>-NH-C(S)-**; wherein **R<sub>4</sub>** is

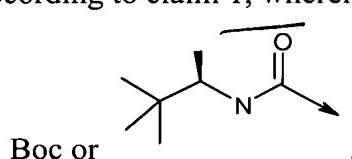
(i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl or C<sub>1-6</sub> alkoxy;

(ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amino or amido.

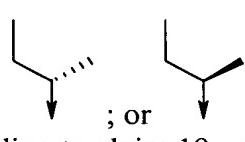
8. A compound of formula I according to claim 2, wherein **B** is a C<sub>6</sub> or C<sub>10</sub> aryl optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amide,

- or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl.
9. A compound of formula I according to claim 2, wherein **B** is Het optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, halo, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl.
10. A compound of formula I according to claim 4, wherein **B** is an acyl derivative of formula **R**<sub>4</sub>-C(O)- wherein **R**<sub>4</sub> is
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, hydroxy or C<sub>1-6</sub> alkoxy; or
  - (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, both optionally substituted with hydroxy, carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, or
  - (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, or (v) Het optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido or amino.
11. A compound of formula I according to claim 5, wherein **B** is a carboxyl derivative of formula **R**<sub>4</sub>-O-C(O)-, wherein **R**<sub>4</sub> is
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy or amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
  - (ii) C<sub>3-7</sub> cycloalkyl, C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, or
  - (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino optionally substituted with C<sub>1-6</sub> alkyl; or
  - (v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, or amino optionally mono-substituted with C<sub>1-6</sub> alkyl.
12. A compound of formula I according to claim 6, wherein **B** is an amide derivative of formula **R**<sub>4</sub>-N(**R**<sub>5</sub>)-C(O)- wherein **R**<sub>4</sub> is
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
  - (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;

- (iii) amino optionally mono- or di-substituted with C<sub>1-3</sub> alkyl, or  
 (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl,  
 hydroxy, amino or amido optionally substituted with C<sub>1-6</sub> alkyl; or  
 (v) Het optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino or amido,  
 and R<sub>5</sub> is H.
13. A compound of formula I according to claim 7, wherein **B** is a thioamide derivative of formula R<sub>4</sub>-NH-C(S)-; wherein R<sub>4</sub> is (i) C<sub>1-10</sub> alkyl; or (ii) C<sub>3-7</sub> cycloalkyl.
14. A compound of formula I according to claim 12, wherein **B** is an amide derivative of formula R<sub>4</sub>-NH-C(O)- wherein R<sub>4</sub> is  
 (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;  
 (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;  
 (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino or amido.
15. A compound of formula I according to claim 1, wherein **B** is



16. A compound of formula I according to claim 1, wherein Y is H or methyl.
17. A compound of formula I according to claim 16, wherein Y is H.
18. A compound of formula I according to claim 1, wherein R<sup>3</sup> is C<sub>1-8</sub> alkyl, C<sub>3-7</sub> cycloalkyl, or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> thioalkyl, acetamido, C<sub>6</sub> or C<sub>10</sub> aryl, or C<sub>7-16</sub> aralkyl,.
19. A compound of formula I according to claim 18, wherein R<sup>3</sup> is the side chain of Tbg, Ile, Val, Chg or:



20. A compound of formula I according to claim 19, wherein R<sup>3</sup> is the side chain of

### Tbg, Chg or Val.

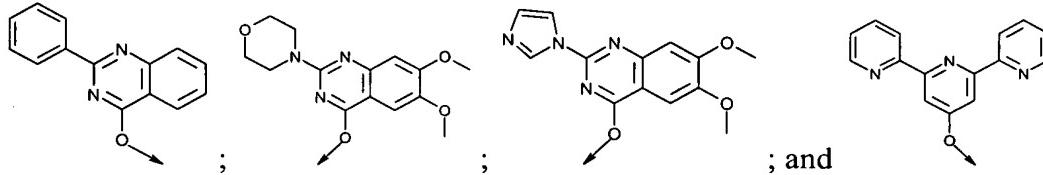
21. A compound of formula I according to claim 1, wherein  $\mathbf{R}^2$  is  $\mathbf{S}-\mathbf{R}_{20}$  or  $\mathbf{O}-\mathbf{R}_{20}$  wherein  $\mathbf{R}_{20}$  is a  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, Het or  $-\text{CH}_2\text{-Het}$ , all optionally mono-, di- or tri-substituted with  $\mathbf{R}_{21}$ , wherein  
 $\mathbf{R}_{21}$  is  $C_{1-6}$  alkyl;  $C_{1-6}$  alkoxy; lower thioalkyl; amino or amido optionally mono- or di-substituted with  $C_{1-6}$  alkyl,  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, Het or (lower alkyl)-Het;  $\text{NO}_2$ ; OH; halo; trifluoromethyl; carboxyl;  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, or Het, said aryl, aralkyl or Het being optionally substituted with  $\mathbf{R}_{22}$ , wherein  
 $\mathbf{R}_{22}$  is  $C_{1-6}$  alkyl;  $C_{3-7}$  cycloalkyl;  $C_{1-6}$  alkoxy; amino; mono- or di(lower alkyl)amino; (lower alkyl)amide; sulfonylalkyl;  $\text{NO}_2$ ; OH; halo; trifluoromethyl; carboxyl or Het.

22. A compound of formula I according to claim 21, wherein  $\mathbf{R}_{21}$  is  $C_{1-6}$  alkyl;  $C_{1-6}$  alkoxy; amino; di(lower alkyl)amino; (lower alkyl)amide;  $C_6$  or  $C_{10}$  aryl, or Het, said aryl or Het being optionally substituted with  $\mathbf{R}_{22}$ , wherein  $\mathbf{R}_{22}$  is  $C_{1-6}$  alkyl;  $C_{3-7}$  cycloalkyl;  $C_{1-6}$  alkoxy; amino; mono- or di(lower alkyl)amino; amido; (lower alkyl)amide; halo; trifluoromethyl or Het.

23. A compound of formula I according to claim 22, wherein  $\mathbf{R}_{22}$  is  $C_{1-6}$  alkyl;  $C_{1-6}$  alkoxy; halo; amino optionally mono- or di-substituted with lower alkyl; amido; (lower alkyl)amide; or Het.

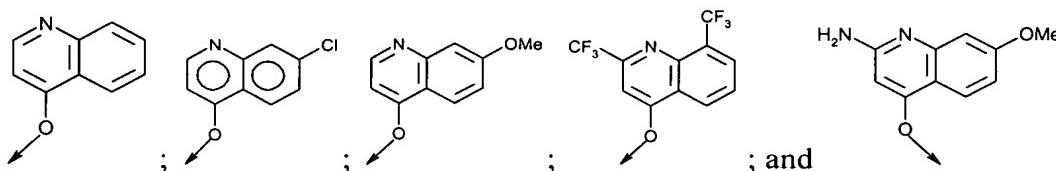
24. A compound of formula I according to claim 23, wherein  $\mathbf{R}_{22}$  is methyl; ethyl; isopropyl; tert-butyl; methoxy; chloro; amino optionally mono- or di-substituted with lower alkyl; amido, (lower alkyl)amide; or (lower alkyl) 2-thiazole.

25. A compound of formula I according to claim 21, wherein  $\mathbf{R}^2$  is selected from the group consisting of:

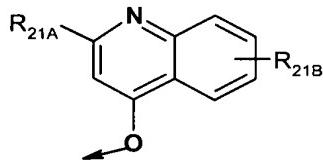


26. A compound of formula I according to claim 21, wherein  $\mathbf{R}^2$  is 1-naphthylmethoxy; 2-naphthylmethoxy; benzyloxy, 1-naphthyoxy; 2-naphthyoxy; or quinolinoxy unsubstituted, mono- or di-substituted with  $\mathbf{R}_{21}$  as defined in claim 21.

27. A compound of formula I according to claim 26, wherein  $\mathbf{R}^2$  is 1-naphthylmethoxy; or quinolin oxy unsubstituted, mono- or di-substituted with  $\mathbf{R}_{21}$  as defined in claim 26.
28. A compound of formula I according to claim 27, wherein  $\mathbf{R}^2$  is selected from the group consisting of:



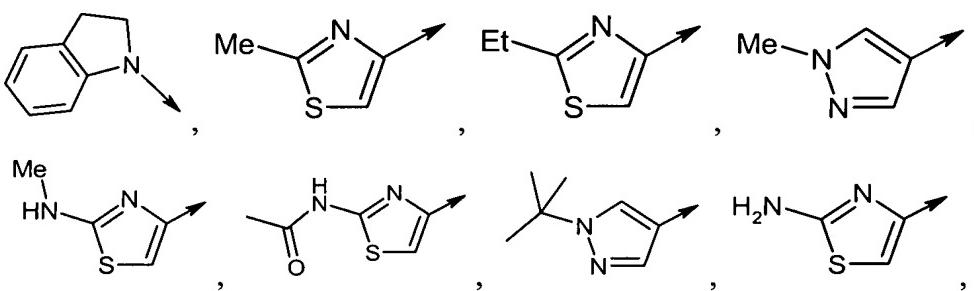
29. A compound of formula I according to claim 26, wherein  $\mathbf{R}^2$  is :

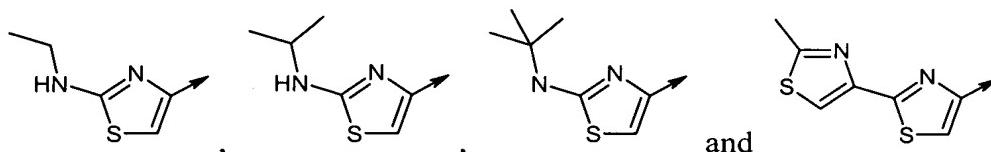


wherein  $\mathbf{R}_{21\mathbf{A}}$  is  $\text{C}_{1-6}$  alkyl;  $\text{C}_{1-6}$  alkoxy; lower thioalkyl; halo; amino optionally mono-substituted with  $\text{C}_{1-6}$  alkyl; or  $\text{C}_6$ ,  $\text{C}_{10}$  aryl,  $\text{C}_{7-16}$  aralkyl, or Het, said aryl, aralkyl or Het optionally substituted with  $\mathbf{R}_{22}$  wherein  $\mathbf{R}_{22}$  is  $\text{C}_{1-6}$  alkyl,  $\text{C}_{1-6}$  alkoxy, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl, or Het; and

$\mathbf{R}_{21\mathbf{B}}$  is  $\text{C}_{1-6}$  alkyl,  $\text{C}_{1-6}$  alkoxy, amino, di(lower alkyl)amino, (lower alkyl)amide,  $\text{NO}_2$ ,  $\text{OH}$ , halo, trifluoromethyl, or carboxyl.

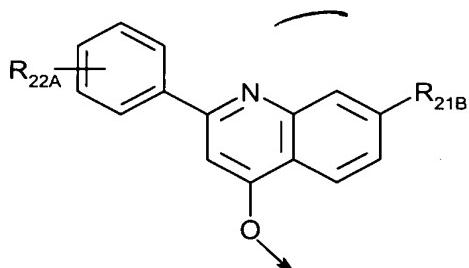
30. A compound of formula I according to claim 29, wherein  $\mathbf{R}_{21\mathbf{A}}$  is  $\text{C}_6$ ,  $\text{C}_{10}$  aryl or Het, all optionally substituted with  $\mathbf{R}_{22}$  as defined in claim 29.
31. A compound of formula I according to claim 30, wherein  $\mathbf{R}_{21\mathbf{A}}$  is selected from the group consisting of:





32. A compound of formula I according to claim 21, wherein  $\mathbf{R}^2$  is:

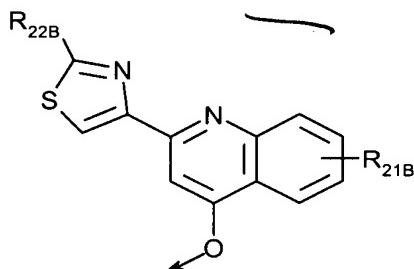
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wherein  $\mathbf{R}_{22A}$  is  $\text{C}_{1-6}$  alkyl;  $\text{C}_{1-6}$  alkoxy; or halo; and  $\mathbf{R}_{21B}$  is  $\text{C}_{1-6}$  alkyl,  $\text{C}_{1-6}$  alkoxy, amino, di(lower alkyl)amino, (lower alkyl)amide,  $\text{NO}_2$ , OH, halo, trifluoromethyl, or carboxyl.

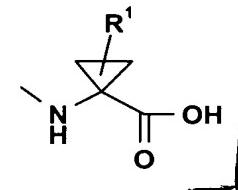
33. A compound of formula I according to claim 29, wherein  $\mathbf{R}^2$  is:

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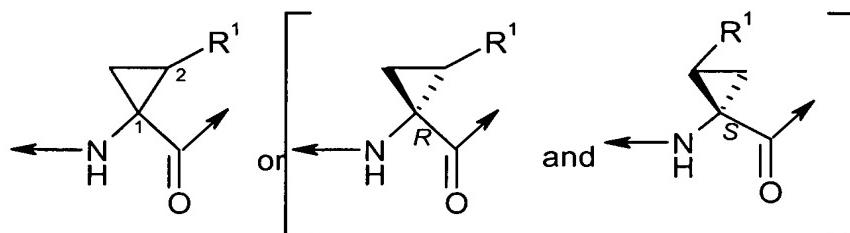


wherein  $\mathbf{R}_{22B}$  is  $\text{C}_{1-6}$  alkyl, amino optionally mono-substituted with  $\text{C}_{1-6}$  alkyl, amido, or (lower alkyl)amide; ; and  $\mathbf{R}_{21B}$  is  $\text{C}_{1-6}$  alkyl,  $\text{C}_{1-6}$  alkoxy, amino, di(lower alkyl)amino, (lower alkyl)amide,  $\text{NO}_2$ , OH, halo, trifluoromethyl, or carboxyl.

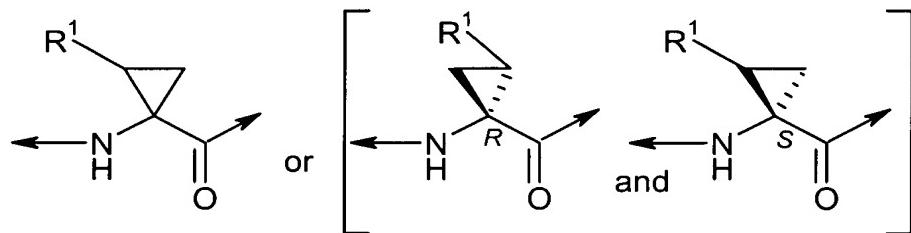
34. A compound of formula I according to claim 32 or 33, wherein  $\mathbf{R}_{21B}$  is  $\text{C}_{1-6}$  alkoxy, or di(lower alkyl)amino.
35. A compound of formula I according to claim 32 or 33, wherein  $\mathbf{R}_{21B}$  is methoxy.
36. A compound of formula I according to claim 1, wherein  $\mathbf{R}^1$  is H,  $\text{C}_{1-3}$  alkyl,  $\text{C}_{3-5}$  cycloalkyl, or  $\text{C}_{2-4}$  alkenyl, all optionally substituted with halo.



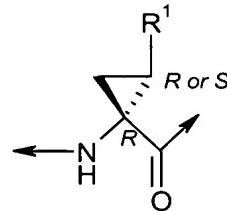
- T<sub>1</sub>370
37. A compound of formula I according to claim 36, wherein P1 is and  $\mathbf{R}^1$  is ethyl, vinyl, cyclopropyl, 1 or 2-bromoethyl or 1 or 2-bromovinyl.
38. A compound of formula I according to claim 37, wherein  $\mathbf{R}^1$  is vinyl.
39. A compound of formula I according to claim 37, wherein  $\mathbf{R}^1$  at carbon 2 is orientated *syn* to the carbonyl at position 1, represented by the radical:



40. A compound of formula I according to claim 37, wherein  $\mathbf{R}^1$  at position 2 is orientated *anti* to the carbonyl at position 1, represented by the radical:

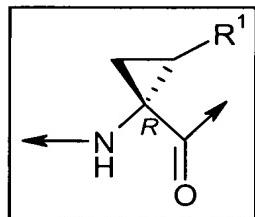


41. A compound of formula I according to claim 37, wherein carbon 1 has the *R* configuration:



42. An optical isomer of a compound of formula I according to claim 41, wherein said  $\mathbf{R}^1$  substituent and the carbonyl in a *syn* orientation in the following absolute configuration:

T,1380



43. A compound of formula I according to claim 42, wherein  $\mathbf{R}^1$  is ethyl, hence the asymmetric carbon atoms at positions 1 and 2 have the *R,R* configuration.
44. A compound of formula I according to claim 42, wherein  $\mathbf{R}^1$  is vinyl, hence the asymmetric carbon atoms at positions 1 and 2 have the *R,S* configuration.
45. A compound of formula I according to claim 1, wherein  
 $\mathbf{B}$  is a  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy,  $C_{1-6}$  alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amido, or amino optionally substituted with  $C_{1-6}$  alkyl; or  
 $\mathbf{B}$  is Het or (lower alkyl)-Het, all optionally substituted with  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy,  $C_{1-6}$  alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amido, or amino optionally substituted with  $C_{1-6}$  alkyl, or  
 $\mathbf{B}$  is  $\mathbf{R}_4\text{-SO}_2$  wherein  $\mathbf{R}_4$  is preferably amido; (lower alkyl)amide;  $C_6$  or  $C_{10}$  aryl,  $C_{7-14}$  aralkyl or Het, all optionally substituted with  $C_{1-6}$  alkyl, or  
 $\mathbf{B}$  is an acyl derivative of formula  $\mathbf{R}_4\text{-C(O)}$ - wherein  $\mathbf{R}_4$  is  
(i)  $C_{1-10}$  alkyl optionally substituted with carboxyl, hydroxy or  $C_{1-6}$  alkoxy, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with  $C_{1-6}$  alkyl;  
(ii)  $C_{3-7}$  cycloalkyl or  $C_{4-10}$  alkylcycloalkyl, both optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with  $C_{1-6}$  alkyl;  
(iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl)amide, or amino optionally substituted with  $C_{1-6}$  alkyl;  
(v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amino optionally substituted with  $C_{1-6}$  alkyl, amido, (lower alkyl)amide, or amino optionally substituted with  $C_{1-6}$  alkyl, or

**B** is a carboxyl derivative of formula  $\mathbf{R}_4\text{-O-C(O)-}$ , wherein  $\mathbf{R}_4$  is

- (i)  $\text{C}_{1-10}$  alkyl optionally substituted with carboxyl,  $\text{C}_{1-6}$  alkanoyl, hydroxy,  $\text{C}_{1-6}$  alkoxy, amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl, amido or (lower alkyl)amide;
- (ii)  $\text{C}_{3-7}$  cycloalkyl,  $\text{C}_{4-10}$  alkylcycloalkyl, all optionally substituted with carboxyl, ( $\text{C}_{1-6}$  alkoxy)carbonyl, amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl, amido or (lower alkyl)amide;
- (iv)  $\text{C}_6$  or  $\text{C}_{10}$  aryl or  $\text{C}_{7-16}$  aralkyl optionally substituted with  $\text{C}_{1-6}$  alkyl, hydroxy, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl; or
- (v) Het or (lower alkyl)-Het, both optionally substituted with  $\text{C}_{1-6}$  alkyl, hydroxy, amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl, amido or (lower alkyl)amido, or

**B** is an amide derivative of formula  $\mathbf{R}_4\text{-N(R}_5\text{)-C(O)-}$  wherein  $\mathbf{R}_4$  is

- (i)  $\text{C}_{1-10}$  alkyl optionally substituted with carboxyl,  $\text{C}_{1-6}$  alkanoyl, hydroxy,  $\text{C}_{1-6}$  alkoxy, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl;
- (ii)  $\text{C}_{3-7}$  cycloalkyl or  $\text{C}_{4-10}$  alkylcycloalkyl, all optionally substituted with carboxyl, ( $\text{C}_{1-6}$  alkoxy)carbonyl, amido, (lower alkyl)amido, or amino optionally mono- or di-substituted with  $\text{C}_{1-6}$  alkyl;
- (iii) amino optionally mono- or di-substituted with  $\text{C}_{1-3}$  alkyl;
- (iv)  $\text{C}_6$  or  $\text{C}_{10}$  aryl or  $\text{C}_{7-16}$  aralkyl, all optionally substituted with  $\text{C}_{1-6}$  alkyl, hydroxy, amido, (lower alkyl)amide, or amino optionally substituted with  $\text{C}_{1-6}$  alkyl; or
- (v) Het or (lower alkyl)-Het, both optionally substituted with  $\text{C}_{1-6}$  alkyl, hydroxy, amino optionally substituted with  $\text{C}_{1-6}$  alkyl, amido or (lower alkyl)amide; and

$\mathbf{R}_5$  is H or methyl, or

**B** is thioamide derivative of formula  $\mathbf{R}_4\text{-NH-C(S)-}$ ; wherein  $\mathbf{R}_4$  is

- (i)  $\text{C}_{1-10}$  alkyl optionally substituted with carboxyl,  $\text{C}_{1-6}$  alkanoyl or  $\text{C}_{1-6}$  alkoxy;
- (ii)  $\text{C}_{3-7}$  cycloalkyl or  $\text{C}_{4-10}$  alkylcycloalkyl, all optionally substituted with

carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino or amido;

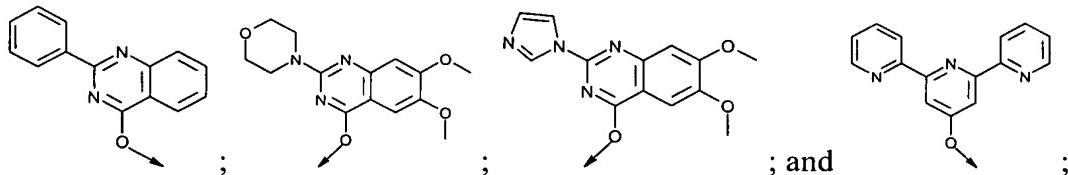
$Y$  is H or methyl;

$R^3$  is  $C_{1-8}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  alkylcycloalkyl, all optionally substituted with hydroxy,  $C_{1-6}$  alkoxy,  $C_{1-6}$  thioalkyl, acetamido,  $C_6$  or  $C_{10}$  aryl, or  $C_{7-16}$  aralkyl;  $R^2$  is S- $R_{20}$  or O- $R_{20}$  wherein  $R_{20}$  is a  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, Het or - $CH_2$ -Het, all optionally mono-, di- or tri-substituted with  $R_{21}$ , wherein

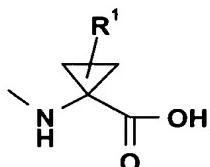
$R_{21}$  is  $C_{1-6}$  alkyl;  $C_{1-6}$  alkoxy; lower thioalkyl; amino or amido optionally mono- or di-substituted with  $C_{1-6}$  alkyl,  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, Het or (lower alkyl)-Het;  $NO_2$ ; OH; halo; trifluoromethyl; carboxyl;  $C_6$  or  $C_{10}$  aryl,  $C_{7-16}$  aralkyl, or Het, said aryl, aralkyl or Het being optionally substituted with  $R_{22}$ , wherein

$R_{22}$  is  $C_{1-6}$  alkyl;  $C_{3-7}$  cycloalkyl;  $C_{1-6}$  alkoxy; amino; mono- or di-(lower alkyl)amino; (lower alkyl)amide; sulfonylalkyl;  $NO_2$ ; OH; halo; trifluoromethyl; carboxyl or Het; or

$R^2$  is selected from the group consisting of:



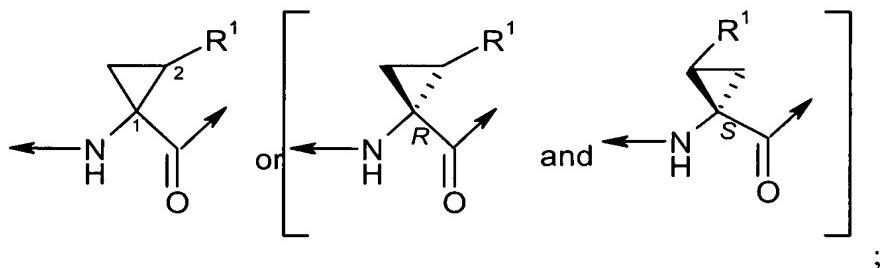
or  $R^2$  is 1-naphthylmethoxy; 2-naphthylmethoxy; benzyloxy, 1-naphthyloxy; 2-naphthyloxy; or quinolinoxy unsubstituted, mono- or di-substituted with  $R_{21}$  as defined above; and



P1 is:

wherein  $R^1$  is H,  $C_{1-3}$  alkyl,  $C_{3-5}$  cycloalkyl, or  $C_{2-4}$  alkenyl optionally substituted with halo, and said  $R^1$  at carbon 2 is orientated *syn* to the carbonyl at position 1, represented by the radical:

Tl410



or a pharmaceutically acceptable salt or ester thereof.

46. A compound of formula I according to claim 45, wherein **B** is a C<sub>6</sub> or C<sub>10</sub> aryl optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, hydroxyalkyl, halo, haloalkyl, nitro, cyano, cyanoalkyl, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; or **B** is Het optionally substituted with C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkanoyl, hydroxy, halo, amido, (lower alkyl)amide, or amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; or **B** is **R**<sub>4</sub>-SO<sub>2</sub> wherein **R**<sub>4</sub> is C<sub>6</sub> or C<sub>10</sub> aryl, a C<sub>7-14</sub> aralkyl or Het all optionally substituted with C<sub>1-6</sub> alkyl; amido, (lower alkyl)amide; **B** is an acyl derivative of formula **R**<sub>4</sub>-C(O)- wherein **R**<sub>4</sub> is

  - (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, hydroxy or C<sub>1-6</sub> alkoxy; or
  - (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, both optionally substituted with hydroxy, carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl; or
  - (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy; or
  - (v) Het optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido or amino;

or **B** is a carboxyl derivative of formula **R**<sub>4</sub>-O-C(O)-, wherein **R**<sub>4</sub> is

  - (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy or amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
  - (ii) C<sub>3-7</sub> cycloalkyl, C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; or
  - (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino optionally substituted with C<sub>1-6</sub> alkyl; or
  - (v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl,

hydroxy, amido, or amino optionally mono-substituted with C<sub>1-6</sub> alkyl;

or **B** is an amide derivative of formula **R**<sub>4</sub>-N(**R**<sub>5</sub>)-C(O)- wherein **R**<sub>4</sub> is

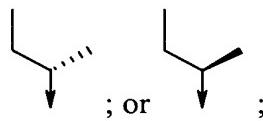
- (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
- (ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl; and **R**<sub>5</sub> is H or methyl; or
- (iii) amino optionally mono- or di-substituted with C<sub>1-3</sub> alkyl; or
- (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino or amido optionally substituted with C<sub>1-6</sub> alkyl; or
- (v) Het optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino or amido; or

**B** is a thioamide derivative of formula **R**<sub>4</sub>-NH-C(S)-; wherein **R**<sub>4</sub> is:

- (i) C<sub>1-10</sub> alkyl; or (ii) C<sub>3-7</sub> cycloalkyl; or

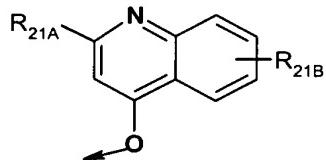
**Y** is H;

**R**<sup>3</sup> is the side chain of Tbg, Ile, Val, Chg or:



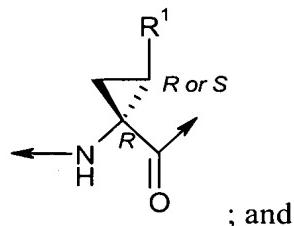
**R**<sub>2</sub> is 1-naphthylmethoxy; or quinolin oxy unsubstituted, mono- or di-substituted with **R**<sub>21</sub> as defined above, or

**R**<sub>2</sub> is :



wherein **R**<sub>21A</sub> is C<sub>1-6</sub> alkyl; C<sub>1-6</sub> alkoxy; C<sub>6</sub>, C<sub>10</sub> aryl or Het; lower thioalkyl; halo; amino optionally mono-substituted with C<sub>1-6</sub> alkyl; or C<sub>6</sub>, C<sub>10</sub> aryl, C<sub>7-16</sub> aralkyl or Het, optionally substituted with **R**<sub>22</sub> wherein **R**<sub>22</sub> is C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl, or Het; and **R**<sub>21B</sub> is C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, amino, di(lower alkyl)amino, (lower alkyl)amide, NO<sub>2</sub>, OH, halo, trifluoromethyl, or carboxyl;

T,1430  
P1 is:



**R<sup>1</sup>** is ethyl, vinyl, cyclopropyl, 1 or 2-bromoethyl or 1 or 2-bromovinyl.

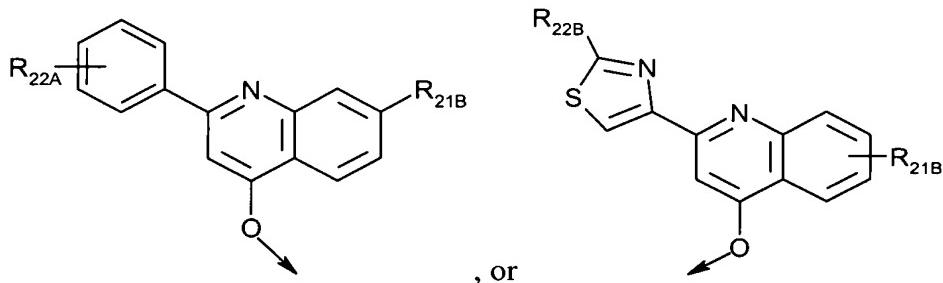
47. A compound of formula I according to claim 46, wherein

**B** is an amide derivative of formula **R<sub>4</sub>-NH-C(O)-** wherein **R<sub>4</sub>** is

- i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
- ii) C<sub>3-7</sub> cycloalkyl or C<sub>4-10</sub> alkylcycloalkyl, all optionally substituted with carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amido, (lower alkyl)amide, amino optionally mono- or di-substituted with C<sub>1-6</sub> alkyl;
- iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-16</sub> aralkyl optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amino or amido;

**R<sup>3</sup>** is the side chain of Tbg, Chg or Val;

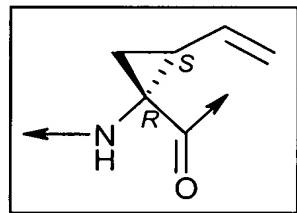
**R<sup>2</sup>** is:



wherein **R<sub>22A</sub>** is C<sub>1-6</sub> alkyl; C<sub>1-6</sub> alkoxy; or halo; **R<sub>22B</sub>** is C<sub>1-6</sub> alkyl, amino optionally mono-substituted with C<sub>1-6</sub> alkyl, amido, or (lower alkyl)amide; and **R<sub>21B</sub>** is C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, amino, di(lower alkyl)amino, (lower alkyl)amide, NO<sub>2</sub>, OH, halo, trifluoromethyl, or carboxyl;

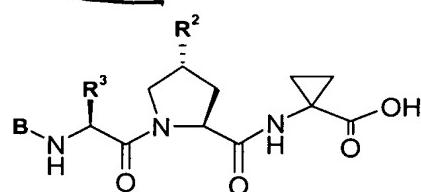
and **P1** is:

T,1440



48. A compound according to claim 45 represented by the formula:

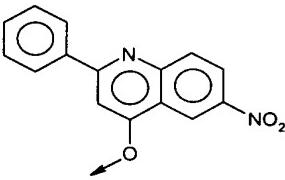
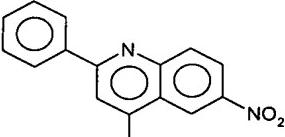
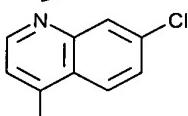
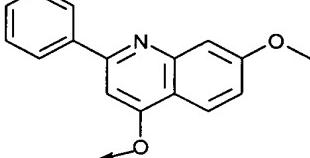
T,1441



wherein **B**, **R<sub>3</sub>**, **R<sub>2</sub>** are as defined below:

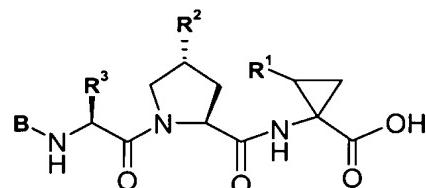
T,1442

Tab 1 Cpd#	B	R <sup>3</sup>	R <sup>2</sup>
101	Boc	cHex	-O-CH <sub>2</sub> -1-naphthyl ;
102		cHex	-O-CH <sub>2</sub> -1-naphthyl ;
103		cHex	-O-CH <sub>2</sub> -1-naphthyl ;
104		cHex	-O-CH <sub>2</sub> -1-naphthyl ;
105		cHex	-O-CH <sub>2</sub> -1-naphthyl ;
106	Boc	cHex	
107		cHex	-O-CH <sub>2</sub> -1-naphthyl ;

Tab 1 Cpd# 108	B	R <sup>3</sup>	R <sup>2</sup>
	Boc	iPr	
109	acetyl	cHex	
110	Boc	i-Pr	
and 111	Boc	t-Bu	

49. Compound # 111 according to claim 48.

50. A compound according to claim 45 represented by the formula:



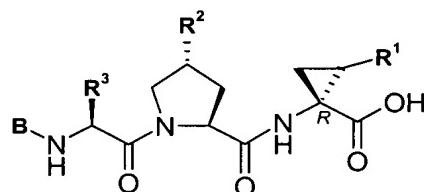
wherein B, R<sup>3</sup>, R<sup>2</sup>, R<sup>1</sup> are as defined below:

T,1451

Table 2	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup>
Cpd #				anti to carboxy
201	Boc	cyclohexyl	-O-CH <sub>2</sub> -1-naphthyl	ethyl (one isomer)
202	Boc	cyclohexyl	-O-CH <sub>2</sub> -1-naphthyl	ethyl (other isomer)

Table 2 Cpd # and 203	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> anti to carboxy
	Boc	t-Bu		vinyl 1R, 2R

51. Compound #203 according to claim 49.
52. A compound according to claim 45 represented by the formula:



wherein B, R<sup>3</sup>, R<sup>2</sup> and R<sup>1</sup> are as defined below:

T, 1461

Table 3 Cpd #	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> syn to carbox
301	Boc	cHex	-O-CH <sub>2</sub> -1-naphthyl	ethyl ;
302		iPr	-O-CH <sub>2</sub> -1-naphthyl	ethyl ;
303		cHex	-O-CH <sub>2</sub> -1-naphthyl	ethyl ;
304	Boc	cHex		ethyl ;
305	Boc	cHex	-O-CH <sub>2</sub> -1-naphthyl	vinyl ;
306	Boc	cHex		vinyl ;
307	Boc	cHex		vinyl ;

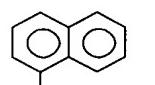
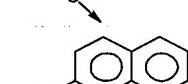
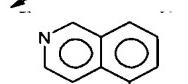
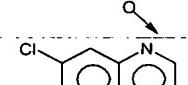
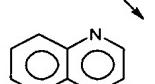
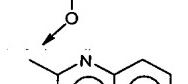
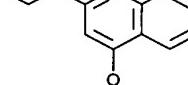
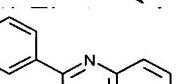
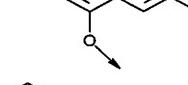
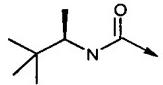
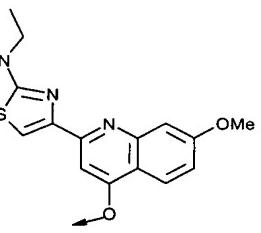
Table 3 Cpd #	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> <i>syn to</i> carbox yl vinyl
308	Boc	cHex		;
309	Boc	cHex		vinyl ;
310	Boc	cHex		vinyl ;
311	Boc	cHex		vinyl ;
312	Boc	cHex		vinyl ;
313	Boc	cHex		vinyl ;
314	Boc	cHex		vinyl ;
315	Boc	cHex		vinyl ;
316	Acetyl	cHex		vinyl ;
317	Boc	cHex		vinyl ;

Table 3 Cpd #	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> <i>syn</i> to carbox yl vinyl
318	CF <sub>3</sub> -C(O)-	<i>i</i> -Pr		
319		cHex		vinyl
320		cHex		vinyl
321	Boc	<i>t</i> -Bu		vinyl
322	Boc	<i>t</i> -Bu		vinyl
323	Boc	<i>t</i> -Bu		
324	Boc	<i>t</i> -Bu		vinyl
325	Boc	<i>t</i> -Bu		

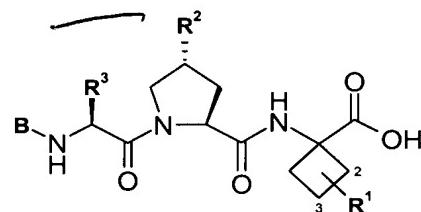
**Table 3**  
**Cpd #**

Table 3 Cpd #	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> syn to carbox yl vinyl
326	Boc	t-Bu		;
327		t-Bu		vinyl ;
328	Boc	t-Bu		vinyl ;
329	Boc	t-Bu		vinyl ;
330	Boc	t-Bu		vinyl ;
331		t-Bu		vinyl ;
332	Boc	t-Bu		ethyl ;
333		t-Bu		vinyl ;

Table 3 Cpd #	B	R <sup>3</sup>	R <sup>2</sup>	R <sup>1</sup> <i>syn to</i> carbox
and 334		<i>t</i> -Bu		yl vinyl

53. A compound according to claim 52, selected from the group consisting of compound #: 307, 314, 317, 319, 321, 324, 325, 326, 327, 329, 331, 332, 333, and 334.

54. A compound according to claim 45 represented by the formula:



wherein **B**, **R<sup>3</sup>**, **R<sup>2</sup>** and **R<sup>1</sup>** are as defined below:

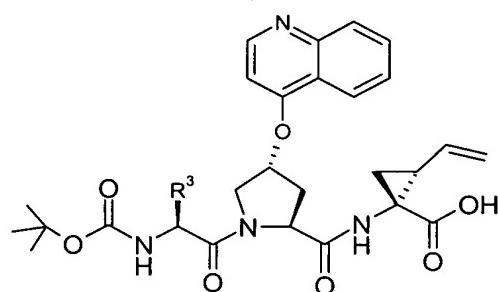
T,1511

Table 4 Cpd #	<b>B</b>	<b>R<sup>3</sup></b>	<b>R<sup>2</sup></b>	<b>R<sup>1</sup></b>
401	Boc	<i>i</i> -Pr		H ;
402	Boc	<i>t</i> -Bu		H ;
403	Boc	<i>t</i> -Bu		H ;
404	Boc	<i>t</i> -Bu		3-(=CH <sub>2</sub> ) ;
405	Boc	<i>t</i> -Bu		2-vinyl ;
and 406	Boc	<i>t</i> -Bu		2-Et .

55. A compound according to claim 54, selected from the group consisting of compound #: 403, 405, and 406.

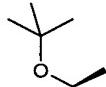
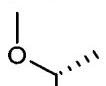
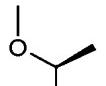
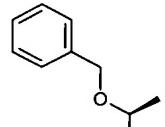
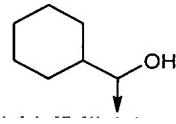
56. A compound according to claim 45 represented by the formula:

T.1520



wherein  $\mathbf{R}^3$  is as defined below:

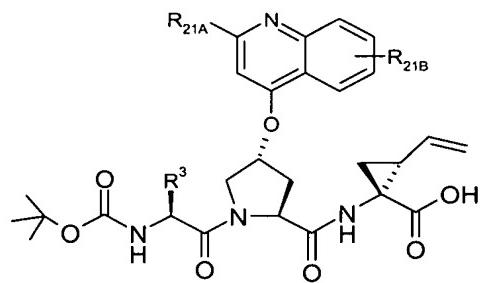
T, 1521

	R <sup>3</sup>			R <sup>3</sup>
Cpd # 501	t-Bu	;		
502	H	;	508	
503		;	509	
504		;	510	
505		;	and 511	
506		;		

57. A compound according to claim 56, selected from the group consisting of compound #: **501, 509, and 510.**

58. A compound according to claim 46 represented by the formula:

T,1530

wherein R<sup>3</sup>, R<sub>21A</sub> and R<sub>21B</sub> are as defined below:Table 6  
Cpd #

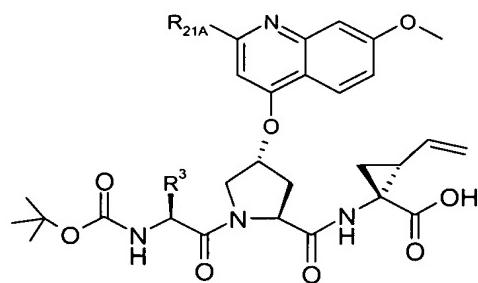
	R <sup>3</sup>	R <sub>21A</sub>	R <sub>21B</sub>
601	i-Pr	Ph	7-OMe ;
602	t-Bu	Ph	8-OMe, 7-OMe ;
603	i-Pr	Ph	7-ethyl ;
604	t-Bu	--	7-OMe ;
605	t-Bu	Ph	7-O-iPr ;
606	t-Bu	--	7-Cl ;
607	iPr	--	7-Cl ;
608	CH <sub>2</sub> -iPr	--	7-Cl ;
609	t-Bu		-- ;
610	t-Bu	Cl	-- ;
611	t-Bu	Ph	7- N(Me) <sub>2</sub> ;
612	t-Bu		-- ;
613	t-Bu		-- ;
614	t-Bu		-- ;
615	t-Bu	--	7- N(Me) <sub>2</sub> ;
616	t-Bu		-- ;

Table 6	R <sup>3</sup>	R <sub>21A</sub>	R <sub>21B</sub>
Cpd #			
617	t-Bu		-- ;
618	t-Bu		-- ;
619	t-Bu		-- ;
620	t-Bu		-- ;
621	t-Bu		-- ;
622	t-Bu		-- ;
623	t-Bu	MeO-	-- ;
624	t-Bu	(Me) <sub>2</sub> N-	-- ;
625	t-Bu	Ph	7-S(Me) ;
626	t-Bu	Ph	7-Br ;
627	t-Bu	Ph	7-F ;
628	t-Bu		7- N(Me) <sub>2</sub> ;
629	t-Bu		7- N(Me) <sub>2</sub> ;
and 630	t-Bu		7-N(Et) <sub>2</sub> ;

59. A compound according to claim 58, selected from the group consisting of compound #: **601, 602, 603, 604, 605, 606, 607, 610, 611, 612, 615, 616, 617, 620, 621, 622, 625, 626, 627, 628, 629, and 630.**

60. A compound according to claim 46 represented by the formula:

T,ISSO

wherein  $R^3$  and  $R_{21A}$  are as defined below:Table 7  
Cpd #

Cpd #	$R^3$	$R_{21A}$
701	$t\text{-Bu}$	;
702	$t\text{-Bu}$	;
703	$t\text{-Bu}$	;
704	$t\text{-Bu}$	;
705	$t\text{-Bu}$	;
706	$t\text{-Bu}$	;
707	$t\text{-Bu}$	;
708	$t\text{-Bu}$	$\text{Ph-N(Me)-}$ ;
709	$t\text{-Bu}$	;
710	$t\text{-Bu}$	$\text{HOOC-}$ ;
711	$t\text{-Bu}$	;
712	$t\text{-Bu}$	$(\text{Me})_2\text{N-}$ ;
713	$t\text{-Bu}$	;
714	$t\text{-Bu}$	;
715	$t\text{-Bu}$	;

**Table 7**  
**Cpd #**

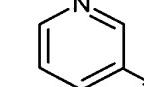
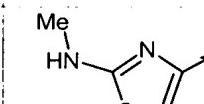
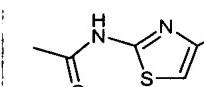
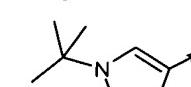
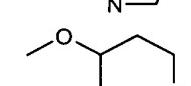
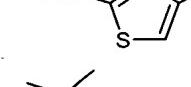
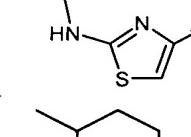
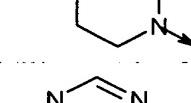
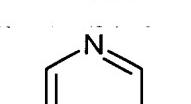
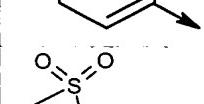
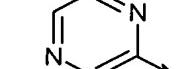
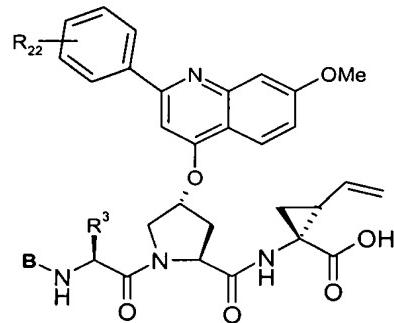
Table 7 Cpd #	R <sup>3</sup>	R <sub>21A</sub>
716	t-Bu	
717	t-Bu	
718	t-Bu	NH <sub>2</sub>
719	t-Bu	
720	t-Bu	
721	t-Bu	
722	t-Bu	
723	t-Bu	
724	t-Bu	
725	t-Bu	
726	t-Bu	i-Pr
727	t-Bu	
728	t-Bu	
729	t-Bu	

Table 7 Cpd #	R <sup>3</sup>	R <sub>21A</sub>	
730	t-Bu		;
731	t-Bu		;
732	t-Bu		;
733	t-Bu		;
734	t-Bu		;
735	t-Bu		;
736	t-Bu		;
and 737	t-Bu	CHex	.

61. A compound according to claim 60, selected from the group consisting of compound #: 701, 702, 703, 704, 705, 706, 707, 708, 709, and 711 to 737.
62. A compound according to claim 45 represented by the formula:



wherein B, R<sup>3</sup>, and R<sub>22</sub> are as defined below:

T,1571

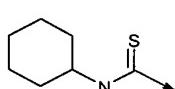
Table 8 Cpd #	B	R <sup>3</sup>	R <sub>22</sub>	
801		t-Bu	--	;

**Table 8**  
**Cpd #**  
**802**

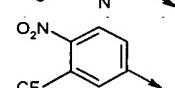
	<b>B</b>	<b>R<sup>3</sup></b>	<b>R<sub>22</sub></b>	
		<i>t</i> -Bu	--	;
<b>803</b>		<i>t</i> -Bu	--	;
<b>804</b>		<i>t</i> -Bu	--	;
<b>805</b>		<i>t</i> -Bu	--	;
<b>806</b>		<i>t</i> -Bu	--	;
<b>807</b>		<i>t</i> -Bu	--	;
<b>808</b>		<i>t</i> -Bu	--	;
<b>809</b>		<i>i</i> -Pr	--	;
<b>810</b>		<i>t</i> -Bu	--	;
<b>811</b>		<i>t</i> -Bu	4-Cl	;
<b>812</b>		<i>t</i> -Bu	--	;
<b>813</b>		<i>t</i> -Bu	--	;
<b>814</b>		<i>t</i> -Bu	2-Cl	;
<b>815</b>		<i>t</i> -Bu	3-Cl	;
<b>816</b>		<i>t</i> -Bu	--	;
<b>817</b>		<i>t</i> -Bu	--	;

Table 8  
Cpd #

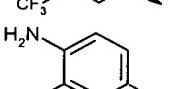
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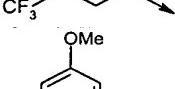
819



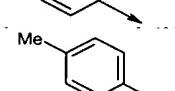
820



821



822



823



824



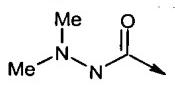
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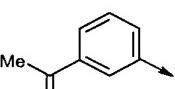
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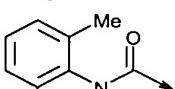
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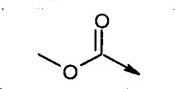
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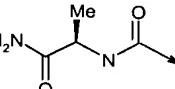
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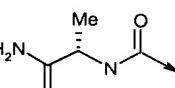
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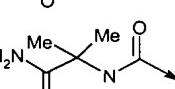
831



832



833

**R<sup>3</sup>***t*-Bu**R<sub>22</sub>**

;

*i*-Pr**R<sub>22</sub>**

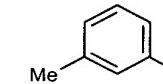
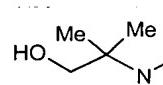
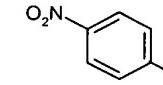
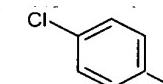
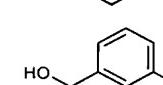
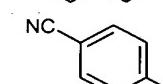
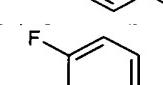
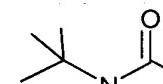
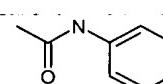
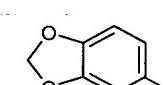
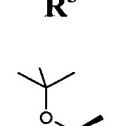
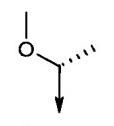
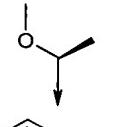
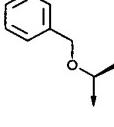
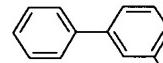
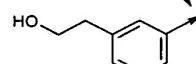
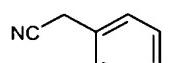
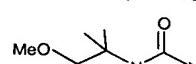
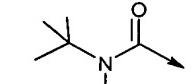
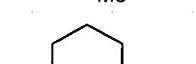
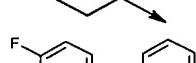
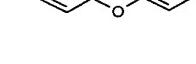
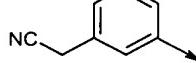
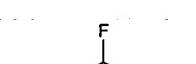
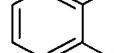
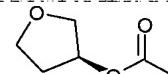
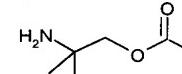
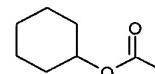
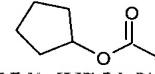
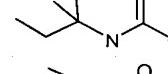
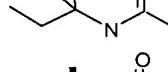
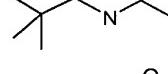
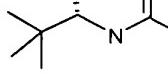
Table 8 Cpd #	B	R <sup>3</sup>	R <sub>22</sub>	
834		i-Pr	--	;
835		t-Bu	--	;
836		i-Pr	--	;
837		i-Pr	--	;
838		i-Pr	--	;
839		i-Pr	--	;
840		i-Pr	--	;
841	Boc	t-Bu	2-Me	;
842	Boc	t-Bu	3-Me	;
843	Boc	t-Bu	4-Me	;
844		t-Bu	4-OMe	;
845		i-Pr	--	;
846		i-Pr	--	;
847	Boc	cHex	--	;
848	Boc		--	;
849	Boc		--	;

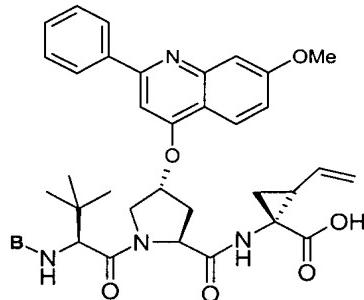
Table 8 Cpd #	B	R <sup>3</sup>	R <sub>22</sub>	
850	Boc		--	;
851	Boc		--	;
852	Boc		--	;
853	Boc		--	;
854		i-Pr	--	;
855		i-Pr	--	;
856		i-Pr	--	;
857		t-Bu	--	;
858		t-Bu	--	;
859		i-Pr	--	;
860		i-Pr	--	;
861		i-Pr	--	;
862		i-Pr	--	;
863		i-Pr	--	;

**Table 8**  
**Cpd #**  
**864**

Table 8 Cpd # 864	B	R <sup>3</sup>	R <sub>22</sub>
		<i>i</i> -Pr	--
865		<i>t</i> -Bu	--
866		<i>t</i> -Bu	--
867		<i>t</i> -Bu	--
868		<i>t</i> -Bu	--
869		<i>t</i> -Bu	--
870		<i>t</i> -Bu	--
871		<i>t</i> -Bu	--
872		<i>t</i> -Bu	--
and 873		<i>t</i> -Bu	--

63. A compound according to claim 62, selected from the group consisting of compound #: **801 to 825, 827 to 858**, and **860 to 873**.

64. A compound according to claim 45 represented by the formula:



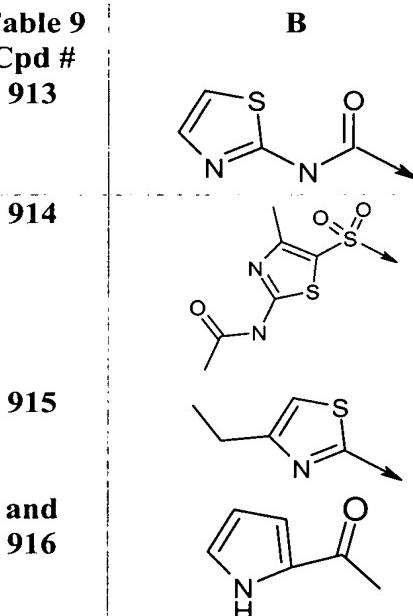
wherein **B** is as defined below:

T. 1630

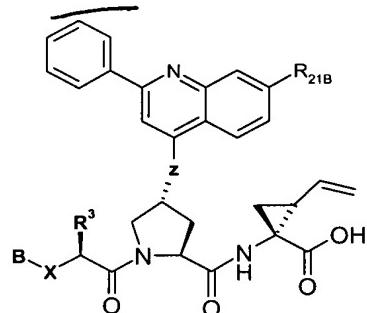
**Table 9**  
**Cpd #**  
**901**

Table 9	B
Cpd #	
901	Boc
902	
903	
904	
905	
906	
907	
908	
909	
910	
911	
912	

**Table 9**  
**Cpd #**  
**913**



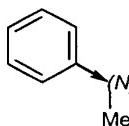
**65.** A compound according to claim 45 represented by the formula:



wherein **B**, **X**, **R<sup>3</sup>**, **z** and **R<sub>21B</sub>** are as defined below:

**Table 10**  
**Cpd #**  
**1001**  
**1002**  
and  
**1003**

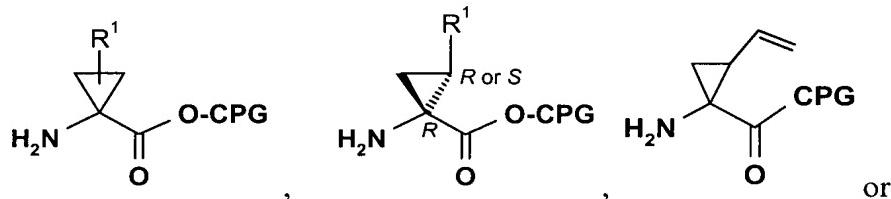
	<b>B-X-</b>	<b>R<sup>3</sup></b>	<b>Z</b>	<b>R<sub>21B</sub></b>
1001	Ph-N(Me)-	<i>i</i> -Pr	O	H;
1002	Boc-NH-	<i>t</i> -Bu	S	OMe;
and 1003		<i>i</i> -Pr	O	---

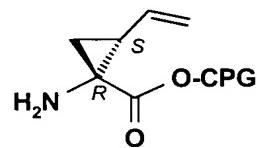


**66.** A pharmaceutical composition comprising an anti-hepatitis C virally effective amount of a compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof, in admixture with a pharmaceutically acceptable

carrier medium or auxiliary agent.

67. A method of treating a hepatitis C viral infection in a mammal comprising administering to the mammal an anti-hepatitis C virally effective amount of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof.
68. A method of treating a hepatitis C viral infection in a mammal comprising administering to the mammal an anti-hepatitis C virally effective amount of the composition according to claim 66.
69. A method of inhibiting the replication of hepatitis C virus comprising exposing the virus to a hepatitis C viral NS3 protease inhibiting amount of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof.
70. A method of treating a hepatitis C viral infection in a mammal comprising administering thereto an anti-hepatitis C virally effective amount of a combination of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof with another anti-HCV agent.
71. A method according to claim 70, wherein said other anti-HCV agent is selected from the group consisting of:  $\alpha$ - or  $\beta$ -interferon, ribavirin and amantadine.
72. A method according to claim 70, wherein said other anti-HCV agent comprises an inhibitor of other targets in the HCV life cycle, selected from: helicase, polymerase, metalloprotease or IRES.
73. A process for the preparation of a peptide analog of formula (I) according to claim 1 wherein P1 is a substituted aminocyclopropyl carboxylic acid residue, comprising the step of:  
coupling a peptide selected from the group consisting of: APG-P3-P2; or APG-P2; with a P1 intermediate of formula:

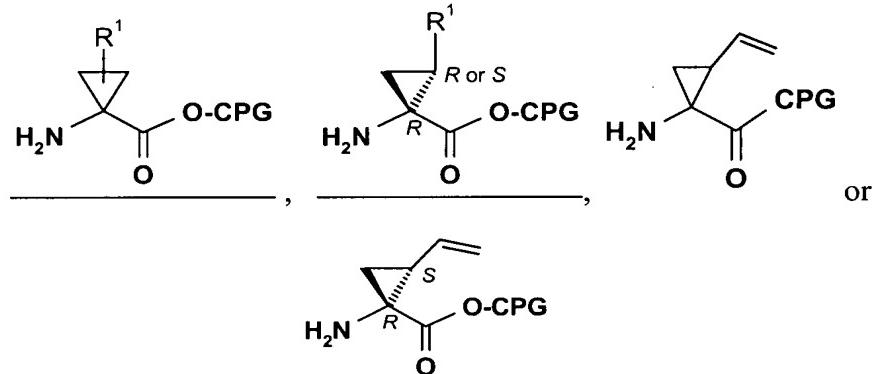




wherein  $\mathbf{R}^1$  is  $C_{1-6}$  alkyl, cycloalkyl or  $C_{2-6}$  alkenyl, all optionally substituted with halogen, CPG is a carboxyl protecting group and APG is an amino protecting group and P3 and P2 are as defined above.

74. A process for the preparation of: a peptide analog of formula (I) according to claim 1, this process comprising the step of:

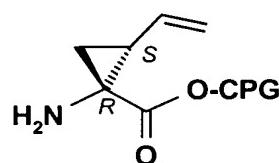
coupling a suitably protected amino acid, peptide or peptide fragment with a P1 intermediate of formula:



wherein  $\mathbf{R}^1$  is C<sub>1-6</sub> alkyl, cycloalkyl or C<sub>2-6</sub> alkenyl, all optionally substituted with halogen, and CPG is a carboxyl protecting group.

75. A process for the preparation of: a peptide analog of formula (I) according to claim 1, this process comprising the step of:

coupling a suitably protected amino acid, peptide or peptide fragment with a P1 intermediate of formula:



wherein CPG is a carboxyl protecting group.

76. A process according to claim 73, 74 or 75 wherein said carboxyl protecting group (CPG) is selected from the group consisting of:

alkyl esters, aralkyl esters, and esters being cleavable by mild base treatment or mild reductive means.

77. Method of preparing a composition for treating a hepatitis C viral infection in a mammal comprising combining an anti-hepatitis C virally effective amount of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof, with a pharmaceutically acceptable carrier medium or auxiliary agent.

78. Method of preparing a composition for inhibiting the replication of hepatitis C virus comprising combining a hepatitis C viral NS3 protease inhibiting amount of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof, with a pharmaceutically acceptable carrier medium or auxiliary agent.

79. Method of preparing a composition for treating a hepatitis C viral infection in a mammal comprising combining an anti-hepatitis C virally effective amount of a combination of the compound of formula I according to claim 1, or a therapeutically acceptable salt or ester thereof, and an interferon with a pharmaceutically acceptable carrier medium or auxiliary agent. ✓

